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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO	
10/608.776	06/30/2003	Kei Yamamoto	204552028900	8129	
75	90 08/25/2006		EXAM	EXAMINER	
Barry E. Bretschneider			FLORES RUIZ, DELMA R		
Morrison & Foe Suite 300	erster LLP		ART UNIT	PAPER NUMBER	
1650 Tysons Boulevard			2828		
McLean, VA	22102	DATE MAILED: 08/25/200	6		

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary		Applic	ation No.	Applicant(s)	Applicant(s)			
		10/608	10/608,776 YAMAMOTO E		ΓAL.			
		Exami	ner	Art Unit				
		Delma	R. Flores Ruiz	2828				
Period fe	The MAILING DATE of this community or Reply	ication appears on	the cover sheet v	with the correspondence a	ddress			
WHIC - Exte after - If NC - Failu Any	ORTENED STATUTORY PERIOD FOR CHEVER IS LONGER, FROM THE MENSIONS of time may be available under the provisions of SIX (6) MONTHS from the mailing date of this common period for reply is specified above, the maximum stature to reply within the set or extended period for reply reply received by the Office later than three months a need patent term adjustment. See 37 CFR 1.704(b).	AILING DATE OF of 37 CFR 1.136(a). In no nunication. atutory period will apply an will, by statute, cause the	THIS COMMUN of event, however, may a not will expire SIX (6) MO application to become A	ICATION. The reply be timely filed  ONTHS from the mailing date of this ABANDONED (35 U.S.C. § 133).				
Status								
1)	Responsive to communication(s) file	d on 12 June 200	<b>5</b> .					
2a)[		2b)⊠ This action i						
٠,۵	closed in accordance with the practice under <i>Ex parte Quayle</i> , 1935 C.D. 11, 453 O.G. 213.							
Disposit	ion of Claims							
4) 🔀	☑ Claim(s) <u>1-22</u> is/are pending in the application.							
•	4a) Of the above claim(s) is/are withdrawn from consideration.							
	Claim(s) <u>9-22</u> is/are allowed.							
·	Claim(s) <u>1-3,5-8</u> is/are rejected.							
	Claim(s) 4 is/are objected to.							
<u> </u>	Claim(s) are subject to restric	tion and/or electio	n requirement.					
Applicat	ion Papers							
9)	The specification is objected to by the	e Examiner.	•					
·	The drawing(s) filed on is/are:		b) objected to	by the Examiner.				
, , <u>, , , , , , , , , , , , , , , , , </u>	Applicant may not request that any object	•						
	Replacement drawing sheet(s) including		•		CFR 1.121(d).			
11)	The oath or declaration is objected to		•		. ,			
Priority (	under 35 U.S.C. § 119							
_	Acknowledgment is made of a claim f ☐ All b)☐ Some * c)☐ None of:	for foreign priority	under 35 U.S.C.	§ 119(a)-(d) or (f).				
	1. Certified copies of the priority	documents have b	een received.					
	2. Certified copies of the priority	documents have b	een received in	Application No				
	3. Copies of the certified copies	of the priority docu	ments have bee	n received in this Nationa	al Stage			
	application from the Internation	nal Bureau (PCT F	Rule 17.2(a)).					
* (	See the attached detailed Office action	n for a list of the co	ertified copies no	t received.				
			•					
Attachmen	ut(s)							
	ce of References Cited (PTO-892)		4) Interview	Summary (PTO-413)				
2) 🔲 Notic	e of Draftsperson's Patent Drawing Review (P	•	Paper No	o(s)/Mail Date	FO 450°			
	mation Disclosure Statement(s) (PTO-1449 or er No(s)/Mail Date	PTO/SB/08)	5)	Informal Patent Application (Pi	I U-152)			

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#### **DETAILED ACTION**

### Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1 – 3, and 5 – 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fukunaga (6,396,863) in view of Serreze (5,222,090).

Regarding claim 1, Fukunaga discloses semiconductor laser comprising; a lower clad layer (see Fig. 3B, Character 52) a lower guide layer (reference call "waveguide", see Fig. 3B, Character 53), an active region (see Fig. 3B, Characters 54 – 56) and upper guide layer (see Fig. 3B, Character 57) and an upper clad layer (see Fig. 3B, Character 58) are supported by GaAs substrate (see Fig. 3B Character 51), the active region having a quantum well (see Fig. 3B, Characters 55) structure in which one or more well layers (see Fig. 3B Character 55) and barrier layers (see Fig. 3B, Characters 54,56) are stacked, wherein said one or more well layer and said barrier layer are formed of any one of InGaP, InGaAsP and GaAsP (Column 9, Lines 1 –2) and

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upper and/or lower guide layer is formed of  $Al_zGa_{1-z}As$  (0.20<z<1) ((Column 8, Lines 64, and Column 11, Lines 5 – 11). The concentration (0.20<z<1) is not explicitly disclosed. However it was shown above that Fukunaga teach in Column 8, Lines 64, and Column 11, Lines 5 – 11, the guide is formed of  $Al_zGa_{1-z}As$  (0 ≤ z2 ≤ 0.2). Due to the use of these concentrations, it is inherent that material can change to different concentrations or composition to guiding the layer).

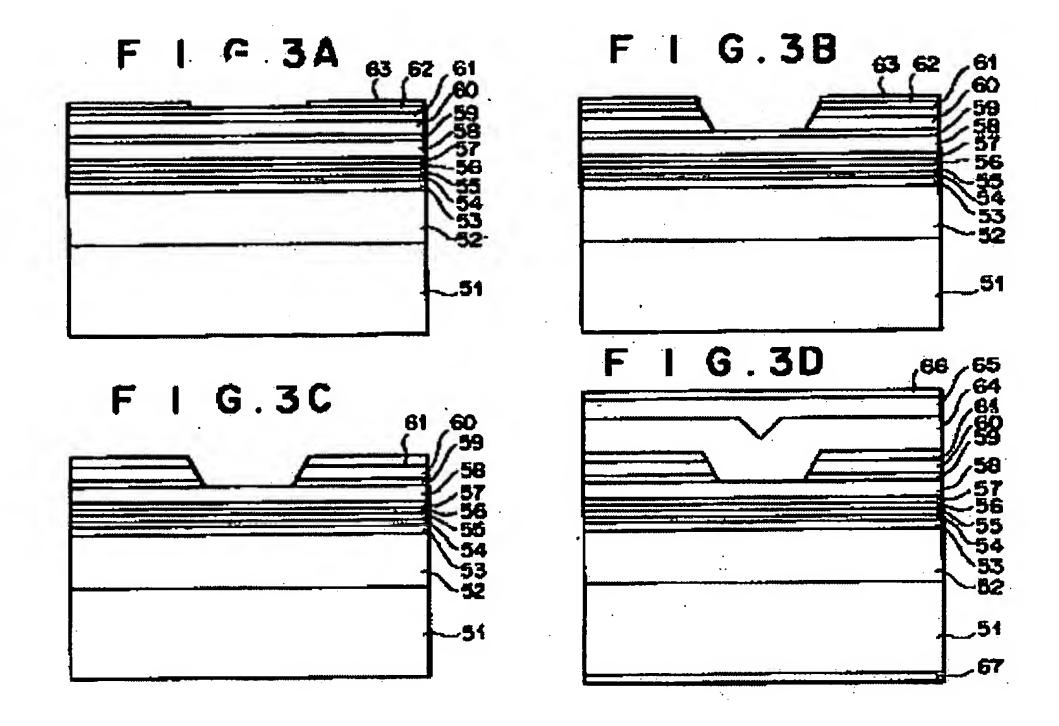
Fukunaga discloses the claimed invention except for semiconductor laser device having an oscillation wavelength of larger than 760nm and smaller than 800nm. However, it is well know in the art for the high power semiconductor laser device to have an oscillation wavelength larger than 760nm and smaller than 800nm as discloses by Serreze in Column 1, Lines 6 – 10 and 63 – 68. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine semiconductor laser device of Serreze with the semiconductor laser device of Fukunaga because it would provide a high power semiconductor laser device with low threshold current, Column 1, Lines 6 –10.

Regarding claim 2, Fukunaga discloses the claimed invention except for and a value of z representing a mole fraction of Al in the group-III elements of said upper and/or guide layer is larger than 0.25 ((Column 8, Lines 64, and Column 11, Lines 5 – 11). The concentration (0.20<z<1) is not explicitly disclosed. However it was shown above that Fukunaga teach in Column 8, Lines 64, and Column 11, Lines 5 – 11, the

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guide is formed of  $Al_zGa_{1-z}As$  ( $0 \le z2 \le 0.2$ ). Due to the use of these concentrations, it is inherent that material can change to different concentrations or composition to guiding the layer).



Regarding claim 3, Fukunaga discloses a upper and lower cladding (see Fig. 3B, Characters 52 and 58) contain Al, and a value of z, wherein a value of z represent a mole fraction of Al in the group-III elements of said upper and/or lower guide layer, is smaller than a value of an Al mole fraction of said upper and lower clad layer (Column 8, Lines 62 – 63).

Regarding claim 5, Fukunaga discloses claimed invention except for a value of z, where a value of z represents a mole fraction of Al in the group-III elements of upper

and/ or lower guide layer, of at least a portion in contact with a barrier layer of said upper and/or guide layer is smaller than 0.4 ((Column 8, Lines 64, and Column 11, Lines 5 – 11). The concentration (0.20<z<1) is not explicitly disclosed. However it was shown above that Fukunaga teach in Column 8, Lines 64, and Column 11, Lines 5 – 11, the guide is formed of  $Al_zGa_{1-z}As$  ( $0 \le z2 \le 0.2$ ). Due to the use of these concentrations, it is inherent that material can change to different concentrations or composition to guiding the layer).

Regarding claim 6, Fukunaga discloses a one or more well layers hace a compressive stain (see Fig. 3B, Characters 55, Column 8, Line 66 – 67).

**Regarding claim 7**, Fukunaga discloses barrier layer have a tensile strain (see Fig. 3B Character 56, Column 9, Lines 1 - 2).

Regarding claim 8, Fukunaga discloses a semiconductor laser is a light-emitting device (see Fig.3A-D, Column 1, Lines 8 – 11).

## Response to Arguments

Applicant's arguments with respect to claims 1 - 22 have been considered but are most in view of the new ground(s) of rejection.

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### Allowable Subject Matter

Claim 4 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 9 - 22 are allowed.

The following is an examiner's statement of reasons for allowance: Claim 9 recites a semiconductor laser structure including the specific structure limitation of barrier layer are formed of an  $In_{1-x}Ga_x$   $As_{1-y}P_y$  having a band gap energy larger than that of said well layers, and there hold relationship that 0 < x < 1; 0.02 < y < 0.75 and |(a2-a1)/a1| \* 100 0.65, where a1 is lattice constant of said one or more well layers, and a2 is lattice constant of said barrier layers, which is neither anticipated or disclosed nor suggested in any piece of available prior art, which is neither anticipated nor obvious over the prior art of record.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

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### **Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Delma R. Flores Ruiz whose telephone number is (571) 272-1940. The examiner can normally be reached on M - F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Min Sun Harvey can be reached on (571) -272-1835. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic

Delma R. Flores Ruiz

Business Center (EBC) at 866-217-9197 (toll-free).

Examiner
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DRFR/MH

August 21, 2006

Min Sun Harvey
Supervisor Patent Examiner

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